

Social factors in homosexually acquired venereal disease

Comparison between Sweden and Australia

MICHAEL W ROSS

From the Department of Psychiatry, Flinders University of South Australia Medical School, Bedford Park, Australia

SUMMARY The prevalence of venereal disease was studied in homosexuals in two countries, Sweden and Australia, which are similar apart from their different legal and social attitudes to homosexuality. Social attitudes were not generally associated with differences in the numbers of infections and reinfections in homosexual men with sexually transmitted diseases. Using a non-clinical sample there was some evidence that sexually transmitted diseases in homosexuals are grossly overestimated if cases rather than individuals are used as an index. Furthermore, the incidence of syphilis was related to the numbers of partners and the latency of symptoms in both societies.

Introduction

It has been recognised for some time that the social context in which sexually transmitted diseases (STDs) occur is important in determining such factors as incidence, prevalence, socioeconomic status of the infected individual, race, and age grouping. Hart¹ goes so far as to comment that "Venereal disease is not primarily a medical problem. It is instead a social one dependent on those factors which influence attitudes and behaviour . . ." This has been most apparent from cross-cultural studies and from studies which examine the social climate in which the sexual behaviour takes place. For example, Arya and Bennett² noted that in East Africa the traditional inverse relationship usually found between social class and the incidence of gonorrhoea was not evident, with venereal disease being a major health problem in universities. This is in clear contrast to western societies, where the incidence of gonorrhoea is much higher in lower socioeconomic groups.^{3,4}

With homosexuality and STD the variables of social climate, attitudes at particular clinics, basis of medical statistics, and status of minority groups become increasingly important.^{5,6} Social climate was recognised as critical in improving the task of the venereologist as far back as 1971, when Morton⁷

commented that from the point of view of contact tracing the English homosexual law reform of 1967 was a most welcome liberalisation of the sex laws. This factor was particularly evident in a Finnish study in 1976 by Suhonen *et al.*,⁸ who reported an increase in the incidence of primary syphilis from 8% before the decriminalisation of homosexual acts between consenting adults in Finland to 50% in 1974-5 four years later, and a notable decrease since then. That the percentage of homosexually transmitted syphilis rose so startlingly without a notable increase in total figures indicates that the change in the law had no effect on the actual incidence of syphilis but only on the accuracy of reporting the source of the infection. Clearly, the legality of a particular sexual act, and community attitudes towards it, will have an effect on the accuracy of reporting. It is unlikely, however, that it would have an effect on actual incidence, although data so far are unclear. The present study tests this hypothesis in a comparison of venereal disease prevalence in Sweden and Australia.

Although percentages of homosexually acquired STD are high, they are misleading. Of the many studies of the incidence of early syphilis by King,⁹ the largest sample was 168 cases,¹⁰ of which 60 were homosexually acquired; these cases were, however, all seen in Greater London. Similarly, in Australia the religious fundamentalists over-reacted to the incidence of homosexually acquired syphilis in 1978 in Melbourne (120 cases, 75% of total infections). When viewed in the context of the population of

Address for reprints: Dr M W Ross, Department of Psychiatry, Flinders University of South Australia Medical School, Bedford Park, South Australia 5042, Australia

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Melbourne (2.5 million), of whom half would be men (1.25 million), 65% over the age of 15 (937 500), and at least 5% homosexual (47 000), this rate of infection would represent only 0.2% of the homosexual population.

The incidence of STD in a particular population must be estimated by looking at non-clinical samples; the incidence in male homosexuals cannot be assessed from those who present to public clinics. In one study of private clinics only 9% were homosexuals.¹¹

Figures can also be very misleading if they are incomplete. Many cases of STD are treated by private medical practitioners. Cleere *et al*¹² reported that practitioners may often decide to report on the basis of whether they consider it will help in contact tracing. McKenzie-Pollock¹³ estimated that nearly 75% of cases of infectious syphilis in the USA were treated but not reported by private practitioners. In Australia Adams¹⁴ reported that less than 10% of cases of gonorrhoea and syphilis seen in private practice were reported. Clearly, estimates of incidence using public statistics are unreliable and social factors probably influence whether individuals present to a public clinic or to a private practitioner.

Furthermore, the problem of estimating the incidence is compounded by the fact that often each new case is counted as a new patient.¹⁵ Such a method of computation is highly suspect if a promiscuous subgroup is being sampled. Studying a group which was not specifically homosexual, Lundin *et al*¹⁶ examined patients who had had four or more infections in two years. These patients had frequent hospital admissions for non-venereal conditions; 40% of their sexual contacts were also repeaters and 92% lived within two city blocks compared with 18% of non-repeaters. Lundin *et al*'s study would suggest that if such a trend is also followed in the homosexual population the number of infections is likely to be a very inaccurate estimate of incidence, as repeaters in the sample could account for a high proportion of total infections.

A final problem relating to the incidence of homosexually acquired STD is whether the contact would be described as a homosexual. A study by Humphreys in 1970¹⁷ showed that about 54% of men making sexual contacts in public toilets were married heterosexuals seeking sexual intercourse which was less impersonal than masturbation. Even with bisexual individuals Jefferiss¹⁸ noted that it was less likely that the contact could be named than with homosexuals. Thus a further element of confusion is added.

In the present study we investigated the incidence in a non-clinical homosexual sample to test three main hypotheses: firstly, in two comparable western societies, which differed in legal and social attitude to

male homosexuality, there would be significant differences in the number of individuals who acquired STD; secondly, that there would be a cross-cultural difference in the number of individuals who acquired gonorrhoea and syphilis and that this would be related to promiscuity; and thirdly, that there would be a significant number of reinfections among the individuals and that this would vary with the society in which the individual lived. A number of associated hypotheses relating to clinic attendance were also examined in a cross-cultural context.

Subjects and methods

The two societies chosen, Sweden and Australia, are roughly the same size in terms of population (Sweden eight million, Australia 12 million) and have comparable standards of living and levels of technological development and industrialisation. In terms of political structures, Banks and Gregg¹⁹ found that on the two most important political dimensions Sweden and Australia had practically identical factor loadings (0.918 v 0.917). More recently, Sidanius *et al*²⁰ compared sociopolitical attitudes between Sweden and Australia and found the similarity, expressed as a correlation of factor loadings across factors, was as high as 0.972. The major difference between Sweden and Australia is in their attitude to homosexuality; in Sweden there is no legal condemnation and a high degree of official acceptance whereas in the two states from which the sample was drawn in Australia, Victoria and Queensland, the reverse is the case.

SAMPLE POPULATION

The sample consisted of 176 Swedish and 163 Australian male homosexuals. Both samples were collected by giving questionnaires, complete with stamped addressed envelopes with the researcher's name and university department as the return address, to homosexual rights and social clubs in Stockholm and in Melbourne and Brisbane. In all cases, the club was the main homosexual or social rights organisation in the city, and the aims and functions of the three clubs selected appeared to be almost identical. The response rate was 44% for Stockholm and 46.6% for Melbourne and Brisbane. This rate was based on the number of questionnaires given to the clubs compared with the number of men on their mailing lists. Some differences were apparent between the sample populations (all tests were one-tailed unless otherwise stated). Significantly more Australians than Swedes ($P < 0.01$) had religious beliefs. A large proportion of the congregation at an American church, the Metropolitan Community Church, is predominantly homosexual. No such

equivalent exists in Sweden. Significant differences also existed in the social status of parents; Australians reported a slightly higher proportion of upper-class parents. Again, this is probably due to the lack of distinct class differences in Swedish society, where most of the population would consider themselves middle-class. Had there been genuine and significant class differences, these would have been reflected in differences in educational background.

The only other significant difference between the samples was in the time elapsing since the respondents became homosexually active (Australia, mean 12.7 years, SD 12.1; Sweden, mean 10.1 years, SD 7.4; $t = 2.10$, $P < 0.03$). This difference occurred possibly because in Sweden social centres exist for individuals when they first define themselves as homosexual probably more so than in Australia. Nevertheless, it is difficult to see how any of these differences might systematically affect the results.

In general, there was a high degree of similarity between samples on important variables. Age range did not differ significantly (Australia, mean 32.0, SD 11.4; Sweden, mean 30.9, SD 7.4; $t = 1.04$, NS) nor did years of education (Australia, mean 13.3, SD 3.6; Sweden, mean 12.7, SD 5.3; $t = 1.28$, NS). The age at which individuals first realised that they were homosexual did not differ significantly between samples (Australia, mean 12.3, SD 11.9; Sweden, mean 14.6, SD 5.8; $t = 1.78$, two-tail, NS). Thus, there were no substantive differences between the Swedish and Australian samples. Given the large sample studied, the lack of significant differences suggests that the two samples were reasonably well matched.

QUESTIONNAIRE

The questions asked were part of an anonymous wider questionnaire comparing homosexual men in Sweden and Australia. Respondents were asked whether they had had gonorrhoea, syphilis, or any other venereal disease (able to be specified) and the number of times they had had each. Further questions asked whether the respondent had visited a public clinic or local medical practitioner on the last occasion they contracted a venereal disease, whether they admitted the source of infection was homosexual, whether they had had any adverse experiences in a public clinic, whether they went to a particular clinic in preference to any other, and whether they knew the individual by whom they had been infected on a total of five possible occasions and whether they knew any details which would make it possible to contact the individual for a total of five possible occasions for each question. Responses were either yes or no. Finally, individuals were asked the average

number of different partners they had had each month over the past year. Ten questionnaires from each sample in which respondents identified themselves were subsequently compared with interviews with the individuals as a check on accuracy; no discrepancies were found. Swedish questionnaires were translated into Swedish by two individuals and checked for accuracy by a third.

DATA ANALYSIS

Analysis was by the χ^2 test for the categorical data and by Student's t test for the data which had interval or ratio scales. χ^2 results were calculated on absolute numbers in all cases, but in some tables raw percentages are also given to enable clearer comparisons between countries.

Results

The results are given in tables I-IV.

TABLE I *Incidence of gonorrhoea and syphilis and mean number of infections in two homosexual sample populations*

	Australia	Sweden
Gonorrhoea*:		
Ever had	47	68
Never had	110	108
Syphilis†:		
Ever had	13	23
Never had	144	153
Mean No of infections:		
Gonorrhoea‡	1.904 (SD 0.30)	1.845 (SD 0.36)
Syphilis§	2.614 (SD 0.34)	2.394 (SD 0.23)

SD = standard deviation; NS = not significant

* $\chi^2 = 4.156$, $P < 0.05$

† $\chi^2 = 1.516$, NS

‡ $t = 1.51$, $P < 0.05$ (one-tailed)

§ $t = 0.54$, NS

TABLE II *Percentage of reinfections occurring in two homosexual sample populations*

Reinfections (%)	No of occasions				
	1	2	3	3-6	7-9
Gonorrhoea*:					
Australia (n = 47)	38.6	27.3	15.9		18.2
Sweden (n = 68)	39.4	30.3	12.1		18.2
Syphilis†:					
Australia (n = 13)	68.8	25.0		6.2	
Sweden (n = 23)	81.8	4.5		13.6	

* $\chi^2 = 0.72$, not significant

† $\chi^2 = 19.41$, $P < 0.01$

TABLE III *Percentage of two homosexual sample populations with gonorrhoea and syphilis in relation to number of sexual partners*

No of partners	% Individuals		n
	Infected	Never infected	
Syphilis:			
High (>2/month)	24.7	75.3	30
Low (<2/month)	20.2	79.8	28
	$\chi^2_1 = 2.229$, NS		
High (>4/month)	20.5	79.5	20
Low (<4/month)	10.5	89.1	38
	$\chi^2_1 = 4.289$, $P < 0.01$		
Gonorrhoea:			
High (>2/month)	45.7	54.3	163
Low (<2/month)	30.7	69.3	155
	$\chi^2_1 = 6.543$, $P < 0.01$		
High (>4/month)	45.8	54.2	83
Low (<4/month)	32.8	67.2	235
	$\chi^2_1 = 3.956$, $P < 0.05$		

TABLE IV *Percentage of infections and reinfections in two homosexual sample populations*

	% Total No ever infected (n)	% Infections which were reinfections (n)
Australia	49.7 (64)	54.9 (78)
Sweden	47.7 (87)	49.2 (81)
	$\chi^2_1 = 1.29$, NS	

NS = not significant

Discussion

The similarity of incidence in STDs between Sweden and Australia appeared to confirm social differences for gonorrhoea but not for syphilis (table I). There was no significant difference between the two countries in the proportion of respondents who had ever had syphilis; however, a higher proportion of Swedes had had gonorrhoea than Australians. It is interesting that in the non-homosexual population gonococcal infections tended to outnumber treponemal ones, and the trend for Sweden was closer to this than that for Australia. This would suggest that, where homosexuality is better accepted and regarded as less abnormal, the pattern of infections might be more similar to that for heterosexuals. The general trend in the two countries, however, for 1978 was that STDs were more common in men in Stockholm (syphilis 0.21/1000; gonorrhoea 4.23/1000) than in Australia (the figures are for the state of Victoria, of which Melbourne is the capital) (syphilis 0.03/1000 and gonorrhoea 1.01/1000). This may be due to differences in data collection, however, as not all private practitioners in Australia notify cases despite the requirement to do so.¹⁴ The proportion of cases of homosexually acquired syphilis has been estimated

at about 75% in Melbourne (Bradford, personal communication) and about 50% in Stockholm (Wallin, personal communication). No estimates are available for gonorrhoea. It is, therefore, possible only to speculate about the pattern of treponemal and gonococcal infections in the two populations. Hart¹ has already suggested that the high prevalence of syphilis, which is usually confined to underprivileged or socially deprived groups, reflects the shortcomings of a particular society rather than the intrinsic nature of disease propagation. With regard to the number of times individuals in the two societies were infected (table II), there is no difference for gonorrhoea but a significant difference for syphilis; Australians appeared to be reinfected with syphilis more often than Swedes. Multiple reinfections were, however, more common in Swedes, which tends to contradict the argument about social acceptance. While the data should be interpreted cautiously they do not suggest that the more open a society's acceptance of homosexuality is, the more closely homosexual STD patterns will approximate those of the non-homosexual group.

It has been suggested that the different trends in incidence of gonorrhoea and syphilis in homosexuals (regardless of social climate) may have been related to the length of the period between infection and appearance of symptoms. For gonorrhoea this ranges from three to five days and for syphilis from nine days to three months with a mean of three weeks. One explanation for the higher incidence of syphilis in homosexuals might be the number of sexual partners. Thus, if an individual averages one new partner a week, gonorrhoea will be noted and treated before contact with the next partner. Syphilis, however, may be passed on to two other partners before symptoms become obvious. Does this account for the higher incidence of syphilis in homosexual men? The data analysis of STD type by number of partners a month showed a significant result for gonorrhoea when the split was made at two partners a month; for syphilis the result was not significant (table III). When the split was made at four partners a month, however, the result for gonorrhoea remained essentially the same but that for syphilis was statistically significant.

These data strongly suggest, therefore, that there is a clear association between homosexuality and syphilis only in terms of frequency of partner change. The individual with the greater number of partners (probably an average of over three or four a month) is likely to infect others before his own infection is recognised. The disproportionate figure for homosexually acquired syphilis would appear, therefore, to be explained by those homosexuals who tend to have a relatively high number of different partners.

There were, however, no significant differences between the mean number of partners a month in the two countries (Sweden, mean 3.8, SD 6.6; Australia, mean 3.7, SD 4.2: $t = 0.19$, NS). It cannot, therefore, be argued that any differences between the two countries are the result of frequency of partner change.

It was also suggested that the reported incidence of homosexually acquired STD would be overestimated if each case was counted as a new patient, as in some analyses. Table IV compares the number of infections and reinfections (regardless of type of STD) between Sweden and Australia. While there were no statistically significant differences between the two countries, with the exception of the different reinfection rates for syphilis reported above, it is interesting that the proportion of the total sample ever infected with STD was high, slightly under 50%. This result is surprising, even though the population sampled was a high-risk one recruited in homosexual clubs. It is not, of course, representative of the homosexual population as a whole. Nevertheless, from these data nearly half the individuals who patronise homosexual meeting places have at some time contracted a venereal disease. The hypothesis that only a small proportion of homosexuals actually contract STD must therefore be rejected. Clearly, social climate is not a significant influence on the total numbers of infections and reinfections. That the number of reinfections was a significant proportion of the total is clearly supported by the data (table IV). Almost 55% of cases reported in Australia would appear to be reinfections and nearly 50% in Sweden.

Such a finding has very clear implications both for the computation of STD incidences and for identifying an at-risk subgroup. It also reinforces the point made by Hull⁵ that there is often a strong bias in some medical statistics towards homosexually acquired venereal diseases. Emphasis, therefore, should be on a group of individuals particularly prone to reinfection and not on the total homosexual community. In general, these data suggest that those individuals who regularly patronise homosexual meeting places are most at risk and that a small core accounts for over half of the cases. The point made by Lundin *et al*¹⁶ regarding a core of reinfectors appears to apply accurately to homosexuals also.

Social bias regarding attendance either at a public clinic or a private medical practitioner was very clear between the two countries (Australia, 38.7% public clinic; Sweden, 82.0% public clinic: $\chi^2 = 33.09$, $P < 0.001$). The significant difference indicated that a far greater proportion of Swedes attended public clinics rather than private medical practitioners, although this term is perhaps misleading in Sweden where most medical practitioners are employed by

the State. It cannot be argued that this was due to adverse experiences in clinics, as there was no significant difference between the two samples in such experiences (Australia, 14.1%; Sweden, 14%: $\chi^2 = 0.039$, NS). There was a significant difference in preference for a particular clinic or practitioner between Swedish and Australian homosexual men (Australia 48.6%; Sweden 28.2%: $\chi^2 = 5.576$, $P < 0.02$). This suggested that Australians preferred an accepting medical practitioner, because of the stigma and legal censure still attached to homosexuality in Australia. Supporting this, Morton²¹ noted reports from Western Australia that most STDs were dealt with in the private sector. This does question, however, the reliability of the figures, since a substantial proportion of private practitioners do not report venereal infections.¹²⁻¹⁴ Furthermore, estimates need to be made from a non-clinical population, as in the present study, in order to make general observations. Even so, it is doubtful if the present data can be applied to other than homosexual men who frequent homosexual meeting places.

Because of the antihomosexual attitudes in Australia and the more accepting attitudes in Sweden, a significant difference would be expected between homosexuals in the two countries in the number admitting that the infecting contact was a homosexual one. This was not the case (Australia 78.9% admitted; Sweden 79.5% admitted: $\chi^2 = 0.009$, NS). This may be explained by the fact that high proportions of Australian homosexuals visited accepting medical practitioners and therefore did not need to hide the source of infection. Thus, the response to greater antihomosexual pressures is probably to find and visit accepting practitioners or clinics. Any social factor present must be related to openness of presentation as a homosexual and directed to the source of treatment rather than to any difference in sexual preference. The social climate relating to homosexuality did not have any direct effect on admission of source of infection.

These data do not show that social factors are associated with major differences in the presentation of homosexual men with STD. This is apparent regarding the incidence of syphilis and the proportion of reinfections but not the place of presentation. In particular the composition of health statistics for the STDs can be questioned. The number of cases of homosexually acquired venereal disease is grossly overestimated if cases rather than patients are recorded and probably grossly underestimated where there are antihomosexual attitudes which militate against the individual attending a public clinic where figures are likely to be reported. Any approach to venereal disease education and to epidemiology must take such factors into account. The evidence does not

appear to support the hypothesis that social attitudes to homosexuality have any pronounced effect on infection or reinfection rates.

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